

Ng, Paul Tat-Keung

U.S. Serial No. 09/579,973

REMARKS

In the Office Action mailed December 20, 2001, the Examiner had allowed claims 15-20 and 50-53 while objecting to claims 3-5, 25, 38, 39, and 41-45, and rejecting claims 1, 2, 6-14, 21-24, 26-37, 40, and 46-49. Applicant appreciates the thorough examination by the Examiner and the indication of allowable subject matter.

Initially, Applicant requests clarification of the status of claim 42. That is, while claim 42 is indicated as having allowable subject matter in the Office Action Summary, in the Detailed Action it is listed both with the claims rejected under 35 U.S.C. §102(e) on page 2 and under the allowable subject matter paragraph on page 4.

Regarding the rejection of claims 40, (42), 46, and 47 under 35 U.S.C. §102(e), claim 40 has been amended to incorporate the subject matter of allowable claim 41. Claim 43 has been amended to depend therefore from claim 40. Accordingly, claims 40 and 42-47 are believed to be in condition for allowance.

The Examiner next rejected claims 1, 7-14, 21-24, and 26-35 under 35 U.S.C. §103(a) as being unpatentable over Krueger (USP 5,816,221) in view of Tobinaga et al. (USP 4,895,120). The Examiner only uses Krueger for a disclosure of an electronic engine control system for ignition and fuel injection in a rope-start engine without a battery, and admits that Krueger "does not determine reverse running and disable the firing sequence in a two stroke engine." The Examiner then states that Tobinaga et al. teaches "that it is known to determine reverse running and disable the firing sequence in a two stroke engine." Applicant does not disagree with this assertion. However, Applicant does disagree with the conclusion that the references, when combined, render the claims

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obvious. Applicant does not claim to be the first to determine reverse running and disabling firing sequence in the abstract. Applicant's claims are more specific than the generality set forth by the Examiner.

Referring specifically to claim 1, the Applicant claims a process (not an apparatus) that includes, among other things, manually driving a rotational component of the engine to rotate and provide power to a control system, and determining an absolute rotational position of the component *within a time as minimal as less than a single revolution of the engine after generating sufficient power to energize the control system.* The process then calls for enabling engine firing upon determining the absolute rotational position of the component to start the engine upon a single performance of the step of manually driving a rotational component. After allowing the engine to start, the claim then calls for determining a rotational direction of the component and only disabling the engine firing sequence if it is determined that the engine is running in a reverse direction.

In the Examiner's Response to Arguments section, the Examiner seems to be requesting additional evidence, and specifically says that the "arguments of counsel cannot take the place of evidence in the record." However, Applicant, by its counsel, is differentiating and explaining the prior art applied by the Examiner. Applicant need not submit additional evidence to differentiate and explain prior art. One must interpret the prior art based on the knowledge of one skilled in the art. One skilled in the art will readily recognize that neither Krueger nor Tobinaga et al. discloses a process that includes determining an absolute rotational position of the component within a time as minimal as less than a single revolution of the engine after generating sufficient power to energize the control system. The Examiner states that "in the ignition control system of

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Tobinaga et al. each cylinder has its own pulser coil." This is simply not the case.

Tobinaga et al. only has three pulser coils 32A, 32B, and 32C (Col. 6, lns. 41-42) for a six-cylinder engine (Col. 4, lns. 50-52). As clearly shown in Fig. 6 and described in Col. 6, the three pulser coils are arranged at 120° intervals and each generates a pulse at each 60° rotation of the crankshaft 12. Col. 6, lns. 42-48. One skilled in the art will readily recognize that Tobinaga et al. does not have one pulser coil for each cylinder.

Tobinaga et al. goes on to explain that:

Pulses P1 and P4 (corresponding to the first and the fourth cylinders 11A and 11D) are generated in the pulser 32A, while the pulses P2 and P5 (corresponding to the second and fifth cylinders 11B and 11E) are generated in the pulser coil 32B. Similarly, pulses P3 and P6 (corresponding to the third and sixth cylinders 11C... and 11F) are generated in the pulser coil 32C. Col. 6, lns. 48-56.

Accordingly, one skilled in the art will readily acknowledge that Tobinaga et al. cannot possibly perform the functions claimed for in process claim 1 within a time as minimal as less than a single revolution of the engine after generating sufficient power to energize the control system. At the very least, Tobinaga et al. would require a minimum of two rotations to perform the tasks called for in claim 1. Further, since Tobinaga et al. has a battery, it does not even perform the step of generating sufficient power to energize the control system. Second, it cannot functionally perform the minimal requirement called for in claim 1. Adding Krueger does not solve this shortcoming. Granted, Krueger discloses a system that provides power to run an electronic fuel injection ignition system directly from the alternator in a rope-start engine application, and it discloses a workable system, but it is not directed toward starting the engine with the minimal rotation called for in claim 1. The combination of these two references does not provide a system that renders claim 1 obvious because when combined, these systems cannot perform the task

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called for in process claim 1. Additionally, since Tobinaga et al. relies on battery power, not only would the combination not render the claim obvious because all the claim limitations are not present in the combination, there is no motivation to combine these references in such a manner. That is, since Tobinaga et al. uses a battery, it is not concerned with determining an absolute rotational position of a component within a time as minimal as less than a single revolution of the engine after generating sufficient power to energize the control system. Krueger, while not having a battery, is also not directed toward the quick starting method called for in claim 1. One skilled in the art would not be motivated to combine these references since one uses a battery and the other does not. Even though Tobinaga et al. uses pulsers, which are powered by the battery, it cannot perform as called for in claim 1 — that is, it cannot possibly determine an absolute rotational position within a time as minimal as less than a single revolution of the engine. Therefore, since neither reference is capable of performing this step, the combination cannot render the claim obvious.

Regarding the necessary motivation to combine these references, neither reference is directed toward the problem the current application resolves. The combined teachings of these references would not suggest to those of ordinary skill in the art to manually drive a rotational component of an engine and provide power to a control system, and determine an absolute rotational position of the component within a time as minimal as less than a single revolution of the engine after generating sufficient power to energize the control system. The Applicant does not quarrel with the Examiner's rationale regarding that combining these two references would render a claim obvious that was

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simply claiming a rope-start engine without a battery and determined reverse running and disabled a firing sequence. But that is not what Applicant claims.

The Examiner also states that "since the essential structural features are taught by the prior art, it is reasonable to expect that the claimed functions would be inherent." However, claim 1 is a process claim. The Examiner states that "where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established." Applicant does not quarrel with this concept either. However, the Examiner has not made a *prima facie* case of obviousness because the Examiner has not shown that the *processes are identical or substantially identical*. The Examiner is attempting to use structural limitations to render a process claim obvious. There are two problems with the Examiner's analysis. First, as previously explained Tobinaga et al. does not disclose "identical or a substantially identical" structure. Identical or substantially identical structure would require that the present application use pulser coils. Further, it is clear to one skilled in the art that each cylinder of Tobinaga et al. does not have its own pulser coil, as claimed by the Examiner. Second, the proposition put forward by the Examiner is directed to "structure or composition" claims, or product by process claims — not process claims.

Because one skilled in the art will readily recognize that the equally spaced pulsers of Tobinaga et al. cannot possibly perform the steps of method claim 1, the Examiner has not provided a *prima facie* case of obviousness. Further, neither Krueger nor Tobinaga et al. suggest the problem which the present invention is directed toward overcoming and neither provides motivation to combine the references that would render

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claim 1 obvious. Neither reference suggests determining an absolute rotational position of the component within a time as minimal as less than a single revolution of the engine after generating sufficient power to energize the control system. Accordingly, Applicant requests reconsideration and allowance of claim 1, and dependent claims 7-14.

Regarding claim 21, Applicant incorporates herein by reference, the relevant remarks set forth with respect to claim 1. In addition, it is noted that the references relied on by the Examiner do not disclose a computer which can determine an absolute rotational position of a rotational component of the engine and enable firing during a single actuation of a manually powered starter, and additionally, determine rotation direction of the rotational component and disable firing if it is determined that the component is running in a reverse direction, after the engine has been allowed to start. For all the above reasons, it is believed that claims 21-24 and 26-33 define over the references cited and are therefore believed allowable.

For similar reasons, it is believed that claims 34 and 35 define over Krueger in view of Tobinaga et al. The combination of these references do not teach, or suggest, a means for determining an absolute rotational position of a rotational component during a single operation of a means for driving the rotational component, together with a means for enabling an engine firing sequence upon determining the absolute rotational position of the component during a single operation of the means for driving the rotational component.

The Examiner also rejected claims 1, 2, 6-14, 21, 22, 26-37, 48, and 49 under 35 U.S.C. §103(a) as being unpatentable over Koerner et al. (USP 6,034,525) in view of Krueger. The Examiner stated that "the resulting control system would inherently

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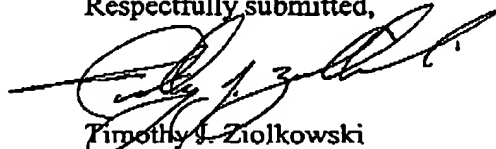
function as claimed.” However, while Applicant believes there is sufficient basis to argue over this rejection, Koerner et al. is not valid prior art under 35 U.S.C. §102(e)/103 because of common ownership. That is, the present application and Koerner et al. were, at the time the invention of the present application was made, owned by Outboard Marine Corporation. Accordingly, as defined in 35 U.S.C. §103 and MPEP 706.02(L)(1) Koerner et al. is disqualified as being used under 35 U.S.C. §103(a) against the claims of the present application.

Therefore, in light of the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1-53.

Marked-up versions of the amendments made above may be found on page 10.

Applicant cordially invites the Examiner to call the undersigned with any questions and/or comments regarding this matter or to resolve any remaining issues.

Respectfully submitted,



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Dated: March 18, 2002
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REVISIONS

40. (Amended) A signal generating apparatus of an engine comprising:
a plurality of indicator markers spaced apart from one another and
positioned about a periphery of a rotational component;
a plurality of indexing markers spaced apart from one another and
positioned about the periphery of a rotational component;
wherein the plurality of indexing markers is less in number than that of the
plurality of indicator markers and where the plurality of indexing markers are unequally
spaced apart; and
a detection apparatus to detect movement of the indexing and indicator
marks and enable an engine to start after detecting rotational position regardless of
rotational direction; and
at least three indexing markers wherein a second indexing marker is
located at a first angular spacing α from a first indexing marker and a second angular
spacing β from a third indexing marker, where α is not equal to β .

43. (Amended) The signal generating apparatus of claim 4140 further
comprising a rotatable flywheel having the signal generating apparatus mounted thereto.

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MAR 18 2002

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